



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,984	03/17/2004	Donald R. Van Der Moere	D5270	3898

30409 7590 08/11/2005

INTERNATIONAL ENGINE INTELLECTUAL PROPERTY COMPANY  
4201 WINFIELD ROAD  
P.O. BOX 1488  
WARRENVILLE, IL 60555

EXAMINER
----------

GARCIA, ERNESTO

ART UNIT	PAPER NUMBER
----------	--------------

3679

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/802,984

Applicant(s)

VAN DER MOERE ET AL.

Examiner

Ernesto Garcia

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03/17/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

The drawings were received on September 28, 2004. These drawings are not acceptable. The drawings do not comply with 37 CFR 1.121 because the top margin of each sheet has not been identified as "Replacement Sheet".

### ***Specification***

In order to minimize the necessity in the future for converting dimensions given in the English system of measurements to the metric system of measurements when using printed patents as research and prior art search documents, all patent applicants should use the metric (S.I.) units followed by the equivalent English units when describing their inventions in the specifications of patent applications.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "the coating comprising the piston pin cylindrical exterior margin" recited in line 2 of claim 2 lacks proper antecedent basis in the specification.

***Claim Objections***

Claim 15 is objected to because "piston pin" in line 7 should be --the tubular body--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 and 16-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the limitation "the mating" in line 4 is misleading since the claim has not set forth that the tubular body is mated with the pin bore.

Regarding claim 8, the limitation "the mating" in line 6 is misleading since the claim has not set forth that the tubular body is mated with the pin bore.

Regarding claims 2-7, 13, and 14, the claims depend from claim 1 and therefore are indefinite.

Regarding claims 9-12, the claims depend from claim 8 and therefore are indefinite.

Regarding claim 16, since claim 15 sets forth that the piston pin is mated with the connecting rod, how does one dispose a chromium-nitride coating after the components are mated. It appears that the step in claim 16 should be before the step of mating in claim 15.

Regarding claim 20, the same problem occurs with the step of buffing after mating.

Regarding claims 17-19, and 21, the claims depend from claim 16 and therefore are indefinite.

### ***Double Patenting***

Applicant is advised that should claims 6 and 7 be found allowable, claims 13 and 14 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-7, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Komuro et al., 5,851,659.

Regarding claim 1, Komuro et al. disclose, in Figure 3, a piston pin comprising a tubular body **13** having an exterior margin. Applicants should note that the exterior margin is shiftably able to mate with an inside margin of a pin bore of a connecting rod.

Regarding claim 2, a chromium-nitride (Cr-N) coating is disposed on the tubular body **13**. The coating comprises the exterior margin.

Regarding claim 3, applicants are reminded that the method of depositing the Cr-N coating by physical vapor deposition is not germane to the issue of patentability of the piston pin itself. Therefore, this limitation has been given limited patentable weight. See MPEP ' 2113.

Regarding claim 4, the coating was deposited to a depth of between 1 and 10 microns (col. 2, line 40).

Regarding claim 5, the coating was deposited to a depth of substantially 5 microns.

Regarding claims 6 and 13, the coating is buffed. Applicant should note that the roller fatigue test apparatus inherently buffs the material until the coating peels off.

Regarding claims 7 and 14, the coating is buffed. Applicant should note that the roller fatigue test apparatus inherently buffs the material until the coating peels off. Applicants should note that limited patentable weight is given to the buffing operation.

Claims 8 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Lemelson, 4,974,498.

Regarding claim 8, as best understood, Lemelson discloses, in Figure 2, a combination of a piston pin **15** and a connecting rod **18**. The piston pin **15** has a tubular body **52** having a cylindrical exterior margin **50,51**. The connecting rod **18** is formed of a certain material and has a pin bore (the pin goes through the bore of the connecting rod **18**). An inside margin of the pin bore has a surface formed of the certain material. Applicants should note that the exterior margin **50,51** is shiftably able to mate with an inside margin of a pin bore of a connecting rod.

Regarding claim 15, Lemelson discloses a method comprises:

form a tubular body **52**;

form a connecting rod **18**;

form a surface margin of a pin bore of a certain material employed in forming the connecting rod **18**; and,

mate an exterior margin **50,51** of the tubular body **52** with an inside margin of the pin bore in a surface to surface engagement.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Hamada et al., 6,886,521.

Regarding claim 1, Hamada et al. disclose, in Figure 1, a piston pin comprising a tubular body **30** having an exterior margin **40**. Applicants should note that the exterior



Art Unit: 3679

margin **40** is shiftably able to mate with an inside margin of a pin bore of a connecting rod.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-12 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson, 4,974,498, as applied to claim 8 above, and further in view of Komuro et al., 5,851,659.

Regarding claim 9, Lemelson disclose the piston pin **15** has a chromium coating **50** disposed on the tubular body **52**. The coating **50** comprises the exterior margin **50,51**. However, the chromium is not a chromium-nitride. Lemelson suggests that chromium alloys or the like can be used as a coating (col. 4, lines 56-62). Komuro et al. suggest using chromium-nitride for a coating to reduce friction (col. 2, lines 33-34). Therefore, as taught by Komuro et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to use chromium-nitride as an alloy for the coating to reduce friction.

Regarding claim 10, applicants are reminded that the method of depositing the Cr-N coating by physical vapor deposition is not germane to the issue of patentability of the piston pin itself. Therefore, this limitation has been given limited patentable weight. See MPEP ' 2113.

Regarding claims 11 and 18, Komuro et al. teaches the coating deposited to a depth of between 1 and 10 microns (col. 2, line 40).

Regarding claims 12 and 19, the coating was deposited to a depth of substantially 5 microns.

Regarding claim 16, Lemelson discloses the step of disposing a chromium coating **50** on the tubular body **52** and the coating **50** comprises the exterior margin **50,51**. However, the chromium is not a chromium-nitride. Lemelson suggests that chromium alloys or the like can be used as a coating (col. 4, lines 56-62). Komuro et al. suggest using chromium-nitride for a coating to reduce friction (col. 2, lines 33-34). Therefore, as taught by Komuro et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to use chromium-nitride as an alloy for the coating to reduce friction.

Regarding claim 17, Lemelson disclose the step of depositing coating by physical vapor deposition.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson, 4,974,498, in view of Komuro et al., 5,851,659, as applied to claims 9-19 above, and further in view of Fukutome et al., 5,601,293.

Regarding claim 20, Lemelson, as modified above, fails to disclose buffing the chromium-nitride after deposition. Fukutome et al. suggest treating the surface roughness of the coating to resist wear (col. 7, line 18-21) as evidenced by the results. Therefore, as taught by Fukutome et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to buff the chromium-nitride after deposition to treat the surface roughness to resist wear.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson, 4,974,498, in view of Komuro et al., 5,851,659 and Fukutome et al., 5,601,293, as applied to claim 20 above, and further in view of Wakefield, 3,757,378.

Regarding claim 21, as modified above, Fukutome et al. fails to disclose the buffing operation used. Wakefield teaches a centerless buffing operation to polish components. Therefore, as taught by Wakefield, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to use a centerless buffing operation to buff the tubular body.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-272-7083. The examiner can normally be reached from 9:30-5:30. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached at 571-272-7087.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*E.G.*

E.G.

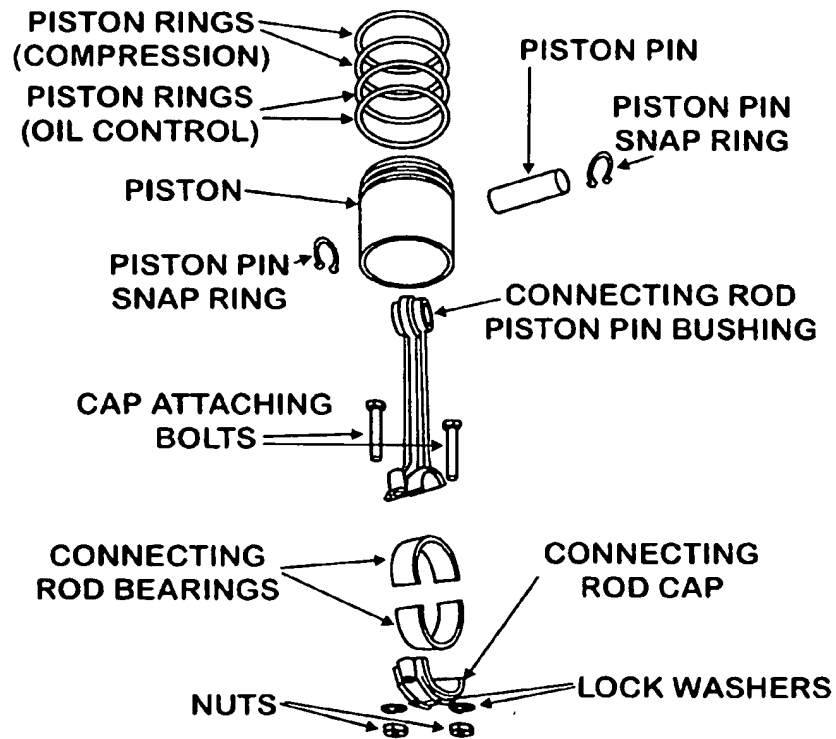
August 4, 2005

*Daniel P. Stodola*

DANIEL P. STODOLA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600

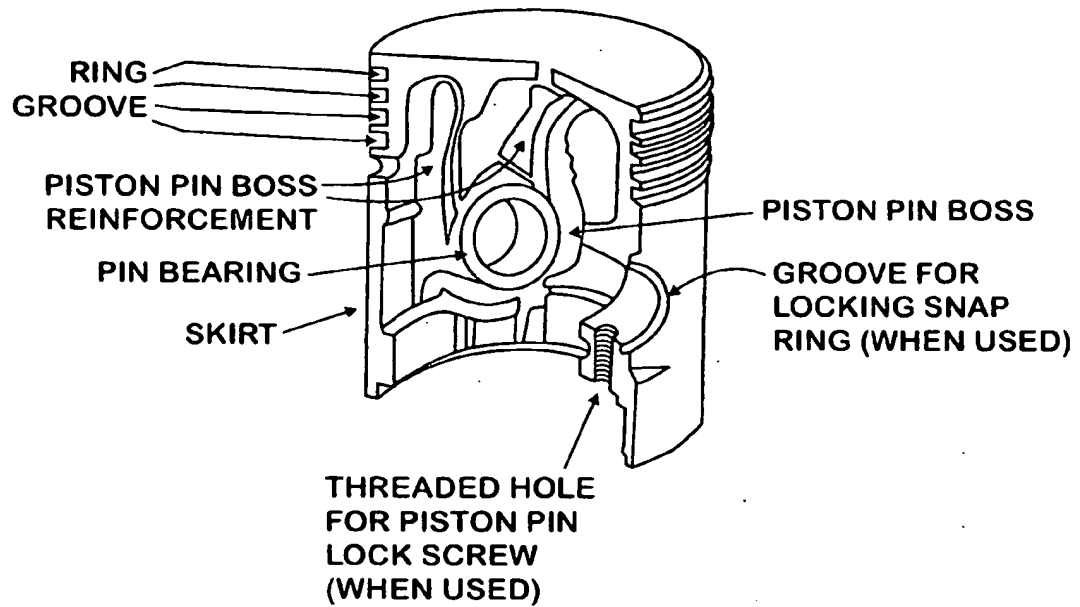
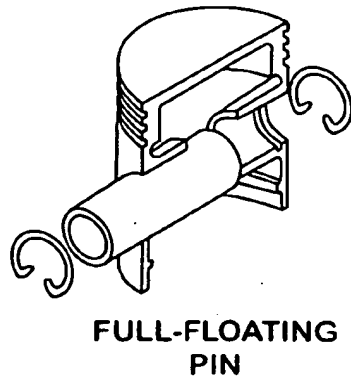
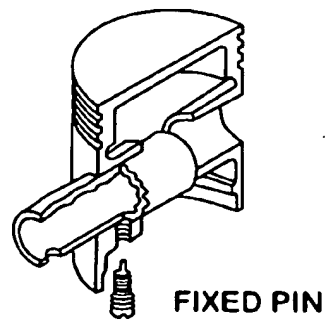


**FIG. 1**  
PRIOR ART



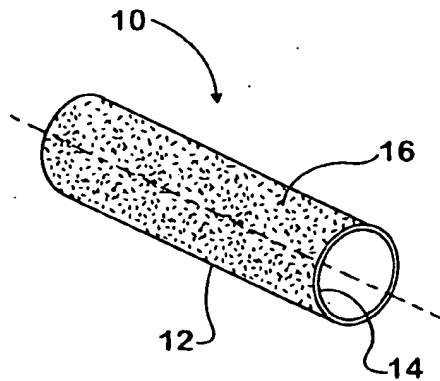
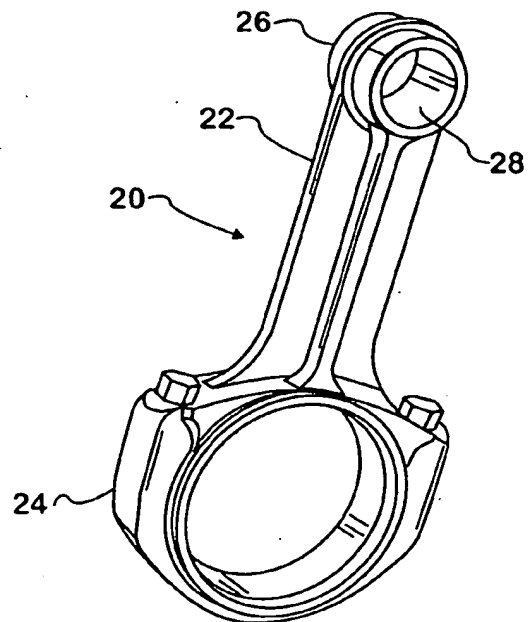
not accepted  
92. 8/4/05

2/4

**FIG. 2**  
PRIOR ART**FIG. 3a**  
PRIOR ART**FIG. 3b**  
PRIOR ART

not accepted  
EL. 8/4/05

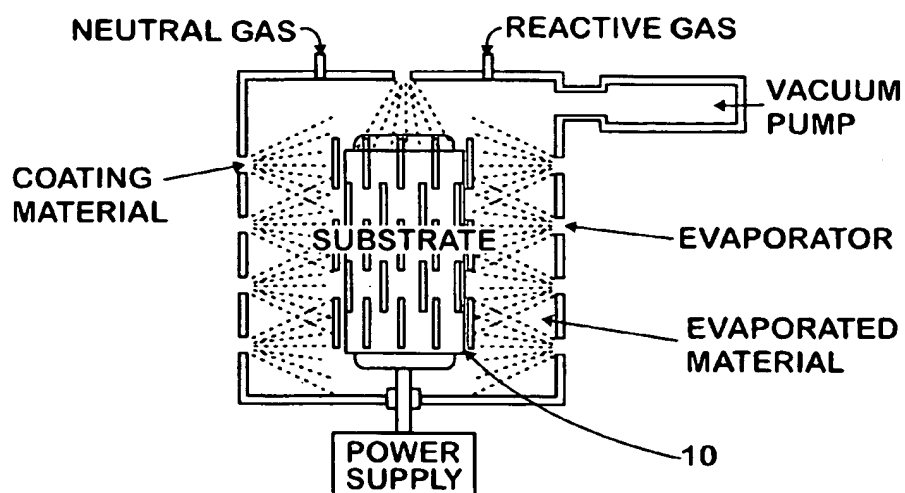
3/4

**FIG. 4****FIG. 5**

not accepted  
E.L. 8/4/05

4/4

FIG. 6



PHYSICAL VAPOR DEPOSITION (PVD)

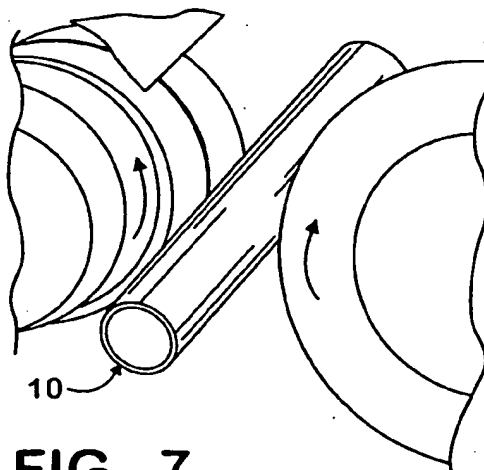


FIG. 7

not accepted  
E.L. 8/4/05